

Unit 1B.3 Notes:

Matter:

1. Anything that has mass and takes up space.
2. Two categories:
 - a. Substances
 - b. Mixtures

Substances:

1. Two categories
 - a. Element
 - b. Compound
2. Elements are pure substances composed of only 1 type of atom
 - a. There are 118 known elements, with 92 occurring naturally.
 - b. It is only an element if it is found on the periodic table.
 - c. 1st letter uppercase, 2nd letter lowercase
 - i) Hydrogen \rightarrow H
 - ii) Carbon \rightarrow C
 - iii) Calcium \rightarrow Ca
 - d. Atom is smallest unit of an element that is still that element.
 - i) All atoms for one element are alike

3. Compounds are two or more elements bonded together in a fixed proportion.
- a. They are the same proportion every time
 - b. If you see 2 different elements written together with no spaces, it is a compound.
 - c. Physical processes CANNOT separate compounds.
 - d. Compounds have a different appearance and properties than the elements that form them.
 - e. Molecule is two or more of the same element bonded in fixed proportion.
 - i) These atoms do not need to be different atoms.
 - 1. $\text{H}-\text{H} \rightarrow$ molecule
 - $\text{H}_2\text{O} \rightarrow$ molecule (also a compound)
 - ii) Molecules are the smallest form of a compound that can exist and still have the properties of that compound.

Mixtures

1. Mixtures contain more than one type of matter that is NOT chemically bonded together.
2. Mixtures can be separated physically.
3. Two categories of mixtures
 - a. Heterogeneous
 - b. Homogeneous
4. Heterogeneous mixtures occur when matter is NOT made up of the same proportions.
 - a. Different parts have easily distinguishable materials
 - b. Examples: cereal, trail mix, cookie dough ice cream, Kit-Kat bar
 - c. CAN be physically separated
5. Homogeneous mixtures occur when matter is the same throughout, evenly blended.
 - a. Examples: Soda, air, chocolate ice cream, salt water
 - b. Homogeneous mixtures are also called solutions.
 - c. CAN be physically separated.

